REMARKS

Claims 13-19 and 22 are pending. By this Amendment, claims 1-12, 20 and 21 are canceled without prejudice or disclaimer and claim 13 is amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Claims 1-4, 6 and 8-22 were rejected under 35 U.S.C. § 103(a) over Tsai et al. (U.S. Patent 6,878,646) in view of Mori et al. (U.S. Patent Application Publication 2004/0038346 A1)), Aminpur et al. (U.S. Patent 6,482,726), Wolf ("Silicon Processing for the VLSI Era," Vol.1: Process Technology, p. 194), and Bergman (U.S. Patent 5,332,445). The rejection is respectfully traversed.

Claims 1-4, 6 and 8-11 have been canceled without prejudice or disclaimer, thus rendering moot their rejection.

MPEP § 707.07(f) states: "A plurality of claims should never be grouped together in a common rejection, unless the rejection is equally applicable to all claims in the group." (Underlining emphasis added.)

Prior to addressing the rejection of claims 13-19 and 22, the Examiner is respectfully requested to clarify the application of Wolf et al. and Bergman to the claims. For example, the Examiner alleges that "Wolf teaches forming the oxide layer by using silane (SiH_4 gas) and O_2 to form a silane-oxide layer by PECVD method." However, claim 13 does not now, nor did it ever, recite that the oxide layer is formed by such a method, nor do any of dependent claims 14-19 and 22. Yet Wolf et al. are applied equally against claims 13-19 and 22. It is respectfully submitted that the Examiner's reliance on Wolf et al. for their disclosure of using SF_6 as a plasma etching gas is also inapplicable to claims 13-19 and 22, as none of these claims recite such a feature.

The Examiner alleges that "Bergman teaches etching the hardmask (oxide/nitride) layer by using HF and nitrogen gas." Bergman is applied equally against claims 13-19 and 22, despite the fact that these features are recited only in claims 15 and 16.

Claim 13 recites a method of fabricating a submicron semiconductor device comprising, *inter alia*, forming a thermal oxide layer on a substrate; forming a polysilicon layer on the thermal oxide layer; and forming a hard mask on the polysilicon layer, wherein said hard mask is a SiH_4 oxide deposited by means of PE-CVD. The combination of references fails to disclose or suggest, at least, these limitations, in addition to the numerous limitations acknowledged on page 3, line 19 through page 4, line 3 of the Office Action, and thus fails to present a *prima facie* case of obviousness.

Tsai et al. do not disclose or suggest a thermal oxide layer. The thin gate dielectric layer 100 is comprised of silicon oxide or a high k dielectric material such as HfO2, ZrO2, or Ta2O5, which is deposited on the substrate 80 by CVD, PECVD, ALD, or MOCVD. It is not a thermal oxide layer, i.e. it is not formed by thermal oxidation.

Tsai et al. also do not disclose or suggest a hard mask which is a SiH_4 oxide deposited by PECVD. The hard mask 120 is comprised of silicon oxide, silicon nitride, or silicon oxynitride (see column 4, lines 41-44), but it is not a SiH_4 oxide.

Mori et al. fails to cure the deficiencies of Tsai et al. with respect to claim 13. Mori et al. disclose on page 3, paragraph [0045], that the materials for the insulating film 208 for the hard mask may be TEOS (tetraethyl orthosilicate), a SiO_2 film by HLD, or a SiN film.

Each of Aminpur et al., Wolf et al. and Bergman fails to disclose or suggest a hard mask which is a SiH_4 oxide deposited by PECVD. Accordingly, the combination of Tsai et al., Mori et al., Aminpur et al., Wolf and Bergman fails to disclose or suggest all of the limitations of claim 13 and fails to present a *prima facie* case of obviousness. See MPEP § 2143.

It is further respectfully submitted that there is no motivation or suggestion to combine the references. Mori et al. are concerned only with the efficiency of etching a residual product resulting from etching the polysilicon layer by using HF solution. See, for example, paragraph [0054]. However, because the process of claim13 also can etch the side of the gate oxide layer because of its isotropic property, it is important to protect the gate oxide layer during the etching of the residual product. As Mori et al. do not disclose or suggest such features, one of ordinary skill in the art would not have been motivated to combine Mori et al. with the other references cited by the Examiner to arrive at the claimed invention.

With respect to the Examiner's reliance on In re Aller, it is respectfully submitted that the Examiner has not satisfied the criteria for relying on the rationale used by the court. MPEP § 2144.04 states: "if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court. Examples directed to various common practices which the court has held normally require only ordinary skill in the art and hence are considered routine expedients are discussed below. If the applicant has demonstrated the criticality of a specific limitation, it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection."

It is respectfully submitted that the facts of the instant application are not sufficiently similar to the facts of In re Aller to permit the Examiner to rely on the court's rationale in that case. In In re Aller, the claimed process, which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70%, was held to be *prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.

In the instant application, none of the applied references disclose or suggest anything regarding the etching of a hard mask of a SiH_4 oxide. For example, the HF solution disclosed in paragraph [0054] of Mori et al. is for etching/removing a SiO, not an SiH_4 oxide. Accordingly, the claimed HF%, temperature, and etching rate are not disclosed or suggested by the applied prior art, and are not obvious.

It is respectfully submitted that the other boilerplate decisions cited on page 6 of the Office Action are as equally inapplicable to the claims as In re Aller.

Reconsideration and withdrawal of the rejection over Tsai et al., Mori et al., Aminpur et al., Wolf et al. and Bergman are respectfully requested.

In view of the above amendments and remarks, Applicants respectfully submit that all the claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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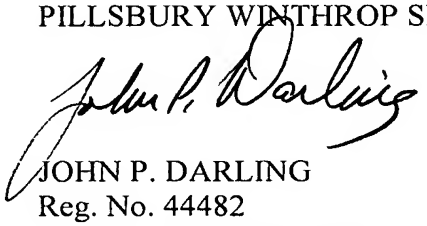

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